

AMENDMENTS TO THE CLAIMS

This listing of the claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A nozzle device, comprising:

a spray hole for spraying washing water;

a pipe forming a first flow path that introduces the washing water to the spray hole; and

a cover member having the spray hole, ~~provided so as to surround~~ the cover member surrounding ~~the pipe,~~ [[said]] the pipe, [[and]] the cover member [[is]] being integrally formed of a cylindrical metal, and a front end of the cover member being closed so as to prevent the washing water from exiting therethrough ~~whose front end is closed,~~

a space between an outer surface of the pipe and an inner peripheral surface of the cover member forming a second flow path that introduces the washing water to the spray hole, wherein

the second flow path is configured to surround the outer surface of the pipe in a circumferential direction of the cover member.

2. (Currently Amended) The nozzle device according to claim 1, further comprising a spray member having an orifice and ~~merging~~ capable of merging the washing water supplied from ~~the first flow path and the washing water supplied from~~ [[said]] the first flow path and the washing water supplied from ~~the second flow path to introduce the merged washing water into~~ [[said]] the orifice.

3. (Currently Amended) The nozzle device according to claim 2, ~~wherein~~ further comprising

[[said]] the spray member ~~forms a spray space~~ having an internal space with an opening at [[its]] one end and ~~having~~ the orifice at ~~the other~~ another end,

[[said]] the first flow path introduces the washing water to ~~said spray~~ the internal space from [[said]] the opening,

[[said]] the second flow path introduces the washing water to the ~~spray~~ internal space from [[its]] a peripheral surface of the spray member, and

~~said spray space has~~ the internal space having a cross-sectional area that gradually or continuously decreases from [[said]] the opening to [[said]] the orifice.

4. (Currently Amended) The nozzle device according to claim 3, wherein,
in order from the opening to the orifice,

~~said spray space~~ the internal space includes a first space having a first inner diameter ~~from said opening to said orifice~~, a second space having a second inner diameter smaller than [[said]] the first inner diameter, and a third space having a third inner diameter smaller than [[said]] the second inner diameter, and

the washing water introduced from [[said]] the second flow path is supplied to the second space.

5. (Currently Amended) The nozzle device according to claim 4, wherein

[[said]] the second space [[is]] comprising a cylindrical space, and

the washing water introduced from ~~[[said]]~~ the second flow path is supplied along an inner peripheral surface of ~~[[said]]~~ the cylindrical space.

6. (Currently Amended) The nozzle device according to claim 5, wherein the axis of ~~[[said]]~~ the second flow path is directed inward from a peripheral wall of ~~[[said]]~~ the cylindrical space such that the washing water is discharged toward the outermost periphery ~~[[of]]~~ to form a swirl having no vorticity within ~~[[said]]~~ the cylindrical space ~~from said second flow path~~.

7. (Currently Amended) The nozzle device according to claim 4, wherein ~~[[said]]~~ the first space has an inner diameter that continuously decreases from ~~[[said]]~~ the opening to ~~[[said]]~~ the second space.

8. (Currently Amended) The nozzle device according to claim 4, wherein ~~[[said]]~~ the third space has an inner diameter that continuously decreases from ~~[[said]]~~ the second space to ~~[[said]]~~ the orifice.

9. (Currently Amended) The nozzle device according to ~~claim 4~~ claim 5, wherein the inner diameter of ~~[[said]]~~ the cylindrical space is two times to five times the inner diameter of ~~[[said]]~~ the orifice.

10. (Currently Amended) The nozzle device according to claim 3, wherein ~~[[the]]~~ a cross-sectional area of ~~[[said]]~~ the first flow path is larger than ~~[[the]]~~ a cross-sectional

area of [[said]] the opening of ~~said spray~~ the internal space.

11. (Currently Amended) The nozzle device according to claim 2, wherein

[[said]] the spray hole is formed on a peripheral wall in the vicinity of a front end of [[said]] the cover member, and

[[said]] the spray member is inserted into the front end of [[said]] the cover member.

12. (Currently Amended) The nozzle device according to claim 1, wherein the front end of [[said]] the cover member has a substantially hemispherical shape.

13. (Currently Amended) The nozzle device according to claim 1, wherein [[said]] the cylindrical metal is stainless.

14. (Currently Amended) The nozzle device according to claim 1, wherein [[said]] the cover member is formed by drawing forming.

15. (Currently Amended) The nozzle device according to claim 1, wherein a part of [[the]] a peripheral wall in the vicinity of the front end of [[said]] the cover member is formed so as to have a flat surface, and [[said]] the spray hole is formed on [[said]] the flat surface.

16. (Currently Amended) The nozzle device according to claim 2, wherein [[said]] the

spray hole has a larger inner diameter than ~~[[said]]~~ the orifice.

17. (Currently Amended) The nozzle device according to claim 2, wherein ~~[[said]]~~ the spray member has a positioner abutting against an inner surface at the front end of ~~[[said]]~~ the cover member such that ~~[[said]]~~ the orifice is positioned relative to the spray hole.

18. (Currently Amended) The nozzle device according to ~~claim 17~~ claim 2, wherein

~~said positioner comprises~~ further comprising a positioner defined by

a first flat portion formed in ~~[[said]]~~ the cover member, and

a second flat portion formed in ~~[[said]]~~ the spray member,

~~[[said]]~~ the pipe being inserted into ~~[[said]]~~ the cover member such that ~~[[said]]~~ the second flat portion in ~~[[said]]~~ the spray member is opposite to ~~[[said]]~~ the first flat portion in ~~[[said]]~~ the cover member.

19. (Currently Amended) The nozzle device according to claim 18, further comprising an annular sealing member for watertightly sealing an area between ~~[[said]]~~ the spray member around ~~[[said]]~~ the orifice and ~~[[said]]~~ the cover member around ~~[[said]]~~ the spray hole.

20. (Currently Amended) The nozzle device according to claim 17, wherein

~~[[said]]~~ the positioner comprises:

a front end abutment portion provided at a front end of ~~[[said]]~~ the spray member

and abutting against the inner surface at the front end of [[said]] the cover member.

21. (Withdrawn-Currently Amended) The nozzle device according to claim 17, wherein
the positioner comprises
a peripheral surface abutment portion provided in [[said]] the spray member and
abutting against an inner peripheral surface of [[said]] the cover member.

22. (Withdrawn-Currently Amended) The nozzle device according to claim 17, wherein
the positioner comprises
an engagement portion provided at a rear end of [[said]] the cover member, and
a portion to be engaged, provided at a rear end of [[said]] the pipe, with which the
engagement portion is engaged.

23. (Withdrawn) A sanitary washing apparatus that sprays washing water supplied from
a water supply source to the human body, comprising:

pressure means for pressurizing the washing water supplied from said water
supply source;

a nozzle device; and

path selection means for selectively supplying the washing water pressurized by
said pressure means to one or both of said first flow path and said second flow path in
said nozzle device,

said nozzle device comprising

a spray hole for spraying washing water,

a pipe forming the first flow path that introduces the washing water to said spray hole, and

a cover member having a spray hole, provided so as to surround said pipe, and integrally formed of a cylindrical metal whose front end is closed,

a space between said pipe and said cover member forming said second flow path that introduces the washing water to said spray hole.

24. (Withdrawn) The sanitary washing apparatus according to claim 23, wherein

said e path selection means comprises

flow rate adjustment means for adjusting the ratio of the respective flow rates of the washing water supplied to the first flow path and the washing water supplied to the second flow path.

25. (Withdrawn) The sanitary washing apparatus according to claim 23, further comprising

heating means for heating the washing water supplied from said water supply source to supply the heated washing water to said pressure means,

said heating means being an instantaneous heating device that heats the washing water supplied from said water supply source while causing the washing water to flow.

26. (Withdrawn) A nozzle device, comprising:

a cylindrical human body washing nozzle having a spray hole for spraying washing water to the private parts of the human body; and

a nozzle cleaning member having an inner peripheral surface in a substantially cylindrical shape surrounding an outer peripheral surface of said human body washing nozzle,

said human body washing nozzle being provided so as to be storable in said nozzle cleaning member and projectable from said nozzle cleaning member,

said nozzle cleaning member having a washing water introduction hole for introducing the washing water into an annular space between the outer peripheral surface of said human body washing nozzle and the inner peripheral surface of said nozzle cleaning member to spirally swirl the introduced washing water.

27. (Withdrawn) The nozzle device according to claim 26, wherein

said human body washing nozzle comprises

a cylinder having a cylindrical inner peripheral surface, and

a cylindrical piston that can be accommodated within said cylinder and can project from said cylinder and has a spray hole at its front end,

said nozzle cleaning member being provided so as to surround the vicinity of the front end of said piston in a state where said piston is accommodated within said cylinder,

said piston being mounted on said cylinder so as to be swingable within said nozzle cleaning member.

28. (Withdrawn) The nozzle device according to claim 27, wherein

said piston comprises

a pipe forming a first flow path that introduces the washing water to said spray

hole,

a cylindrical cover member having said spray hole, provided so as to surround said pipe, and closed at its front end, a second flow path that introduces the washing water to said spray hole being formed between said cover member and said pipe, and

a spray member, provided at a front end of said pipe and having an orifice, for merging the washing water supplied from said first flow path and the washing water supplied from said second flow path to introduce the merged washing water into said orifice.

29. (Withdrawn) The nozzle device according to claim 26, wherein said washing water introduction hole is provided such that the washing water introduced into said nozzle cleaning member can be sprayed in a direction substantially tangential to an outer peripheral surface of said human body washing nozzle.

30. (Withdrawn) The nozzle device according to claim 26, wherein a front end of said human body washing nozzle projects from said nozzle cleaning member when the human body washing nozzle is stored.

31. (Withdrawn) A sanitary washing apparatus that sprays washing water supplied from a water supply source to the human body, comprising:

a nozzle device;

first washing water supply means for supplying washing water to said human body washing nozzle in said nozzle device,

second washing water supply means for supplying washing water to said washing water introduction hole of said nozzle device; and

a heating device that instantaneously heats the washing water supplied from said water supply source,

the washing water heated by said heating device being vapor,

said nozzle device comprising

a cylindrical human body washing nozzle having a spray hole for spraying washing water to the private parts of the human body, and

a nozzle cleaning member having an inner peripheral surface in a substantially cylindrical shape surrounding an outer peripheral surface of said human body washing nozzle,

said human body washing nozzle being provided so as to be storable in said nozzle cleaning member and projectable from said nozzle cleaning member,

said nozzle cleaning member having a washing water introduction hole for introducing washing water into an annular space between the outer peripheral surface of the human body washing nozzle and the inner peripheral surface of said nozzle cleaning member to spirally swirl the introduced washing water.

32. (Withdrawn) The sanitary washing apparatus according to claim 31, further comprising

a toilet seat,

a human body detection sensor that detects the presence or absence of the human body on said toilet seat, and

a controller that controls the supply of the washing water to said washing water introduction hole by said second washing water supply means on the basis of an output of said human body detection sensor,

said controller not supplying the washing water heated by said heating device to said washing water introduction hole when said human body detection sensor detects the human body.

33. (Withdrawn) The sanitary washing apparatus according to claim 31, further comprising

a branched pipe that can discharge a part or all of the washing water supplied from said water supply source outward,

the second washing water supply means supplying at least a part of the washing water flowing in said branched pipe to said washing water introduction hole.

34. (Withdrawn) A sanitary washing apparatus comprising:

a nozzle device having a spray hole for spraying washing water supplied from a water supply source to the human body;

divergent angle adjustment means for changing the divergent angle of the washing water sprayed from said spray hole of the nozzle device;

advancing or retreating driving means for moving said nozzle device so as to advance or retreat between a forward position and a backward position; and

control means for controlling said advancing or retreating driving means and said divergent angle adjustment means such that the advancing or retreating movement of the

nozzle device by said advancing or retreating driving means and the change in the divergent angle of the washing water from said spray hole of said nozzle device are combined with each other.

35. (Withdrawn) The sanitary washing apparatus according to claim 34, wherein

said control means controls the advancing or retreating driving means and said divergent angle adjustment means such that the divergent angle of the washing water from said spray hole of said nozzle device is changed while said nozzle device repeats the advancing or retreating movement between said forward position and said backward position.

36. (Withdrawn) The sanitary washing apparatus according to claim 34, wherein

said control means controls the advancing or retreating driving means and said divergent angle adjustment means such that the washing water from said spray hole of said nozzle device is alternately switched to dispersed flow and linear flow while said nozzle device repeats the advancing or retreating movement between said forward position and said backward position.

37. (Withdrawn) The sanitary washing apparatus according to claim 34, wherein

said control means controls said advancing or retreating driving means and said divergent angle adjustment means such that the divergent angle of the washing water from said spray hole of said nozzle device is changed while said nozzle device is moving from said forward position to said backward position or from said backward position to

said forward position.

38. (Withdrawn) The sanitary washing apparatus according to claim 34, wherein

said control means controls said advancing or retreating driving means and said divergent angle adjustment means such that the washing water from said spray hole of said nozzle device is switched to linear flow and dispersed flow while said nozzle device is moving from said forward position to said backward position or from said backward position to said forward position.

39. (Withdrawn) The sanitary washing apparatus according to claim 34, wherein

said control means controls said advancing or retreating driving means and said divergent angle adjustment means such that the divergent angle of the washing water from said spray hole of said nozzle device is changed in a state where said nozzle device is stopped for a predetermined time period at said forward position or said backward position.

40. (Withdrawn) The sanitary washing apparatus according to claim 34, wherein

said control means controls said advancing or retreating driving means and said divergent angle adjustment means such that the washing water from said spray hole of the nozzle device is alternately switched to dispersed flow and linear flow in a state where said nozzle device is stopped at said forward position or said backward position.

41. (Withdrawn) The sanitary washing apparatus according to claim 34, further

comprising

setting means for setting a combination of the advancing or retreating movement of said nozzle device by said advancing or retreating driving means and the change in the divergent angle of the washing water from said spray hole of the nozzle device.

42. (Withdrawn) The sanitary washing apparatus according to claim 34, wherein

said nozzle device comprises

a first flow path that introduces the washing water from said water supply source to said spray hole,

a second flow path that introduces the washing water from said water supply source to said spray hole, and

rotating flow generation means for generating rotating flow in the washing water in said first flow path, and

said divergent angle adjustment means comprises flow rate adjustment means for adjusting the respective flow rates of the washing water supplied to said first flow path and the washing water supplied to said second flow path.

43. (Withdrawn) The sanitary washing apparatus according to claim 42, wherein

said rotating flow generation means has a cylindrical chamber, and

the washing water in said first flow path is supplied along an inner peripheral surface of said cylindrical chamber.

44. (Withdrawn) The sanitary washing apparatus according to claim 34, further

comprising

pressure means for pressurizing the washing water while subjecting the washing water supplied from said water supply source to periodical pressure fluctuations, to supply the pressurized washing water to said nozzle device.

45. (Withdrawn) The sanitary washing apparatus according to claim 34, further comprising

heating means for heating the washing water supplied from said water supply source to supply the heated washing water to said pressure means.

46. (Withdrawn) The sanitary washing apparatus according to claim 45, wherein

said heating means is an instantaneous heating device that heats the washing water supplied from said water supply source while causing the washing water to flow.

47. (Canceled)